

# Mistaken identity? When a white marlin may not always be a white marlin

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The roundscale spearfish bears a close resemblance to the white marlin at first glance. A close examination of fins, scales, and DNA reveals a very different species. Credit: George Hinteregger

For years, anglers thinking they were catching the prized white marlin may have caught something quite different, raising concerns about the true remaining numbers of the threatened species, according to an article in the most recent issue of the scientific journal *Bulletin of Marine Science*.

A team of scientists from the Guy Harvey Research Institute at Nova Southeastern University and NOAA Fisheries Service's Southeast Fisheries Science Center in Miami has confirmed the existence of an enigmatic billfish species closely resembling the heavily-fished, overexploited white marlin.

Known as the roundscale spearfish, the new billfish species has been found in the northwestern Atlantic Ocean, where its distribution overlaps

that of the white marlin, a prized game fish of American recreational anglers.

This finding has significant implications to the future of the threatened white marlin, as recent population assessments may have been overestimated since the species is virtually indistinguishable from the previously unrecognized roundscale spearfish. A prior petition to qualify the white marlin for the U.S. Endangered Species List, arguing its declining population size, was unsuccessful.

"The existence of the roundscale spearfish was confirmed by analyzing the shape of its mid-body scales, which are slightly more rounded at one end compared to the scales of all other Atlantic billfish species, and by analyzing its DNA which turns out to be very different from other billfish species," says Mahmood Shivji, Ph.D., the article's lead author and director of the Guy Harvey Research Institute.

Without an expert eye to see the subtle differences between the white marlin and the roundscale spearfish, conservation and management may be difficult. Without DNA analysis, a very close examination of the scales or calculating the ratio of the distance of the animal's urogenital opening from the anal fin to the height of that fin are the primary methods of determining the difference between the white marlin and the roundscale spearfish. Shivji says that commercial and recreational fishers without knowledge of these subtle appearance differences may misidentify a "white marlin," when it actually is a roundscale spearfish.

"We don't know much about roundscale spearfish, particularly how abundant they are. If they are abundant and if they have been consistently misidentified as white marlin in the historical landings database of the International Commission for the Conservation of Atlantic Tunas (ICCAT), then white marlin population sizes may have been overestimated in past assessments," said Eric Prince, Ph.D., of

NOAA Fisheries Service and a co-author of the study. "This unexpected finding adds an unknown level of uncertainty to our previous estimates of white marlin population size, and certainly suggests that the magnitude of roundscale spearfish misidentification and possible 'contamination' of white marlin landings data need to be examined in greater detail."

Additional roundscale spearfish specimens have subsequently been seen by specially trained fisheries observers, suggesting that encounters with this species may not be uncommon in the northwestern Atlantic, according to Lawrence Beerkircher, manager of the Pelagic Observer Program at NOAA Fisheries and a co-author of the article.

"This finding also raises the possibility of 'mistaken identity' problems in larval billfish surveys that have been conducted throughout the Atlantic Ocean," said co-author Joe Serafy, Ph.D., a NOAA fishery biologist and an associate professor at the University of Miami.

Using fine-mesh nets towed behind research vessels, larval billfish surveys obtain important management information on when and where spawning occurs and the location of nursery grounds for the marlin, sailfish and spearfish species.

Based on a stock assessment performed in 2002 by ICCAT, white marlin populations are already severely overfished and only at about 12 percent of the level necessary to maintain maximum sustainable harvests (i.e., fishing mortality is way too high).

With much international concern about preventing further population declines, the discovery of the roundscale spearfish now adds to this concern by raising the possibility that white marlin populations may be even smaller than previously estimated due to misidentifications. International management and conservation efforts will need to take this

new uncertainty into consideration.

Source: Guy Harvey Research Institute, Nova Southeastern University

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